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*Published in:*

Journal of Veterinary Behavior: Clinical Applications and Research

*Publication date:*

2016

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[10.1016/j.jveb.2016.08.058](https://doi.org/10.1016/j.jveb.2016.08.058)

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*Citation for published version (APA):*

Lewis, V., Dumbell, L., & Stallard, P. (2016). A preliminary investigation to compare the pressure exerted by a conventional square saddle pad and a novel saddle pad behind the saddle. *Journal of Veterinary Behavior: Clinical Applications and Research*, 15, 92. <https://doi.org/10.1016/j.jveb.2016.08.058>

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Publisher copy available at <https://doi.org/10.1016/j.jveb.2016.08.049>

## **A PRELIMINARY INVESTIGATION TO COMPARE THE PRESSURE EXERTED BY A CONVENTIONAL SQUARE SADDLE PAD AND A NOVEL SADDLE PAD BEHIND THE SADDLE**

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Anecdotal evidence suggests that square saddle pads can cause pressure sores and chafing in the area behind the saddle. This study aimed to compare pressure on the horse's lumbar spinous processes region applied by a novel saddle pad and a conventional square saddle pad. A two condition counter-balanced repeated measures crossover design study involved six horse-rider combinations competing at BE 100 and BE Novice eventing. A Tekscan Conformat pressure system was fitted between the saddle pad and the horse's back extending at least 50mm caudally behind the saddle pad. The pressure system was calibrated as recommended by the manufacturer using load calibration before each saddle pad was tested. A ten minute adjustment period in walk, trot and canter preceded two minute data collection periods at each gait, at five fps for five seconds post thirty seconds in each gait, repeated three times. The mean pressure (kPa) at each gait was calculated for an area corresponding to the lumbar dorsal spinous processes. The mean pressure with the novel pad was significantly less (stand, walk, sitting trot and canter ( $z_6 = -2.201$ ,  $P < 0.01$  for all and rising trot  $z_6 = -2.207$ ,  $P < 0.01$ ) than the conventional pad, in all gaits. The conventional saddle pad exerted detectable pressure over the lumbar spinous processes, which was significantly reduced, and in trot and canter removed, by the novel saddle pad. A horse in physical discomfort, or even pain, is more likely to exhibit conflict behaviours placing the handler/rider at increased risk of injury.

**Keywords:** Saddle pad, pressure, equine, back, health, welfare.